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# Keeping Secrets From Parents: Longitudinal Associations of Secrecy in Adolescence

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A 2-wave survey study among 1173 10–14-year-olds tested the longitudinal contribution of secrecy from parents to psychosocial and behavioral problems in adolescence. Additionally, it investigated a hypothesized contribution of secrecy from parents to adolescent development by examining its relation with self-control. Results showed that keeping secrets from parents is associated with substantial psychosocial and behavioral disadvantages in adolescence even after controlling for possible confounding variables, including communication with parents, trust in parents, and perceived parental supportiveness. Contrary to prediction, secrecy was also negatively associated with feelings of self-control. Secrecy from parents thus appears to be an important risk factor for adolescent psychosocial well-being and behavioral adjustment.

**KEY WORDS:** secrecy; psychosocial problems; well-being; adjustment.

Secrecy is a common social phenomenon. Most of us have kept secrets from others at one time or another, and we believe it is safe to say that we all have had secrets kept from us. Mastering the art of secrecy seems to be a part of normal development (Peskin, 1992; Pipe and Goodman, 1991; Watson and Valtin, 1993), and the ability to conceal information from others appears to be an adaptive skill in managing our social interactions (e.g. Simmel 1950; Schlenker and Weigold, 1992). Neverthe-

less, psychologists have long since regarded secrecy a dangerous undertaking, one that is stressful and burdensome to the secret-keeper (e.g. Finkenauer and Rimé, 1998a,b; Lane and Wegner, 1995; Larson and Chastain, 1990; Pennebaker and Susman, 1988). However, recent evidence of a link between secrecy and feelings of emotional autonomy among adolescents suggests that there may also be a positive side to secrecy (Finkenauer *et al.*, 2002), because it may contribute positively to adolescent development. The present study builds upon previous findings on the consequences of secrecy in adolescence. Its objectives are fourfold. First, it aims to provide further evidence of psychosocial disadvantages of secrecy in adolescence. Second, it aims to extend our knowledge of secrecy's disadvantages in adolescence by including measures of behavioral problems. Third, it aims to further investigate secrecy's possible contribution to adolescent development by examining its relation to feelings of self-control in adolescence. Fourth, it aims to investigate the predictive power of secrecy from parents by examining its advantages and disadvantages in adolescence longitudinally.

## DEFINITION OF SECRECY

In this paper, we define secrecy as the intentional concealment of personal information from others (cf. Bok,

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1989; Kelly, 2002). As we see it, secrets consist of information that (at least) 1 person actively and consciously withholds from (at least) one other person. There are 2 aspects of secrecy that can be assumed to play a role in determining its consequences for the secret-keeper. One is the specific content of a secret, the other is the fact that a secret is kept per se (Finkenauer, 1998). It seems obvious that the effects of concealing information should depend on the type of information that is being concealed. However, the empirical investigation of the secret content poses an ethical dilemma. Secrets, by definition, concern information that people, for 1 reason or the other, do not want to or cannot reveal to others. Researchers investigating the content of secrets want or need secret-keepers to reveal their secrets. Furthermore, it is the act of concealment itself that defines secrecy and should be an important determinant of its effects (cf. Finkenauer, 1998; Kelly, 2002). Most empirical research on secrecy therefore focuses on the secrecy as such, and abundant findings support that secrecy, independent of the specific content of a secret, may have harmful effects for the secret-keeper (e.g., Finkenauer *et al.*, 2002; Ichiyama *et al.*, 1993; Lane and Wegner, 1995; Larson and Chastain, 1990). Secrecy involves purpose and intent, and thus requires that secret-keepers actively and deliberately engage in behavior that protects the secret information and prevents others from finding out about it (e.g., omission, deception, lying, distraction, inhibition, thought suppression). Therefore, secrecy is not merely the opposite of self-disclosure (i.e., sharing personal information with others). In the present study, we were interested in examining the effects of keeping secrets from parents in adolescence rather than specific secret-contents.

### THE DARK SIDE OF SECRECY

Secrecy is generally regarded as problematic and negative. Keeping secrets means you have something to hide, something censurable or shameful. Like a self-inflicted disease, secrecy is assumed to compromise mind and body, ultimately causing great harm to the keeper's physical and psychological well-being. Research among adults seems to substantiate this negative view of secrecy (e.g. Finkenauer and Rimé, 1998b; Lane and Wegner, 1995; Larson and Chastain, 1990; Pennebaker and Susman, 1988). For example, Larson and Chastain (1990) found that the dispositional tendency to keep secrets, which they labeled "self-concealment," contributed to physical complaints, anxiety, and depression, even after accounting for other explanatory variables such as self-disclosure and traumatic experiences. These disad-

vantages of secrecy seem to hold in adolescence, where secrecy from parents has been associated with physical complaints and depressive mood (Finkenauer *et al.*, 2002). However, the disadvantages of secrecy in adolescence may extend beyond the psychosocial disadvantages commonly studied among adults. Adolescence is a turbulent period fraught with many problems (Arnett, 1999). Besides emotional problems, such as depressive mood, adolescents often display behavioral problems, such as aggression, and these 2 types of problems tend to co-occur (Overbeek *et al.*, 2001). Behavioral problems such as violence and delinquency increase sharply during adolescence and the period of adolescence is characterized by a peak in antisocial behavior (Moffitt, 1993). Could secrecy contribute to this increment in behavioral problems in adolescence? To answer this question, this study examines secrecy's associations with aggressive behavior and delinquency in adolescence.

### A BRIGHTER SIDE OF SECRECY?

Although secrecy's possible advantages have been neglected in favor of its disadvantages in research, the literature provides suggestions of secrecy's beneficial qualities (e.g., Kelly, 1998; Simmel, 1950). Most importantly in light of the present study, secrecy has been proposed to facilitate adolescent development (Margolis, 1966; Simmel, 1950; Van Manen and Levering, 1996). Adolescents' passage from childhood into adulthood requires that they take more responsibility for themselves, rather than relying on their parents. To achieve this developmental goal, they need to gain autonomy and independence from their parents and master self-regulation and self-determination (e.g. Allen *et al.*, 1994; Larson *et al.*, 1996; Steinberg and Silverberg, 1986). Secrecy may facilitate the accomplishment of these developmental tasks in a number of ways. Because secrecy, by nature, separates those who know from those who do not know, it may promote independence and autonomy. Some evidence for this suggestion was provided by Finkenauer *et al.* (2002), who found that secrecy from parents was related to emotional autonomy in adolescence. Furthermore, keeping a secret requires self-control and personal choice, which are considered as indicators of the development of self and autonomy (Flammer, 1991; Margolis, 1966). In keeping a secret, one needs to decide to whom the secret should or should not be revealed and, when deciding to conceal the secret, one needs to monitor one's thoughts and actions and restrain oneself from involuntarily spilling the secret and giving it away. In this way, secrecy may foster the capacity to inhibit or override urges, behaviors, and desires, in

other words, the capacity for self-control (Muraven and Baumeister, 2000; Tangney *et al.*, 2004). Thus, secrecy should contribute to mastering self-regulation by enhancing adolescents' capacity to exert self-control.

## THE PREDICTIVE POWER OF SECRECY

Studies on the disadvantages and advantages of secrecy in adolescence are cross-sectional. Although the evidence indicates that secrecy is associated with disadvantages in both adulthood and adolescence, and with some advantages in adolescence, it is yet to be determined whether secrecy is a determinant of well-being and adjustment in the long run. The present study attempts to fill this gap in our knowledge by examining secrecy's predictive power regarding adolescent psychosocial well-being, behavioral problems, and self-control. Specifically, we focused on adolescents' secrecy from parents during their 1st year of secondary education. This period appears especially relevant, because school transition confronts young adolescents with major academic and social changes (e.g., Eccles *et al.*, 1996; Higgins and Parsons, 1983; Simmons and Blyth, 1987). These changes may place stress on young adolescents (e.g., Isakson and Jarvis, 1999). In the immediate aftermath of this school transition, early adolescents show increased anxiety (Cotterell, 1992; Harter *et al.*, 1992), increased self-consciousness and concern with self-presentation, and decreased self-esteem (Eccles *et al.*, 1989; Simmons *et al.*, 1973). Research indicates that after the first year most of these indicators have returned to their baseline (Cotterell, 1992). Given the heightened self-presentational concerns that accompany social changes in the 1st year, secrecy may bear particular importance in this period of psychosocial turmoil. In the present study, data were collected at 2 waves within the 1st year of secondary education to examine the longitudinal contribution of secrecy from parents to adolescent psychosocial well-being and adjustment over the course of this turbulent year.

## CONFOUNDS

Because secrecy from parents taps into communication in the adolescent–parent relationship, the study of its consequences may be confounded by other communication characteristics, such as the amount of disclosure towards parents. By definition, a piece of information that is kept secret is not disclosed. However, in everyday life, people often share information and keep secrets at the same time. For example, an adolescent girl may tell her parents about her day at school while keeping the fact that she received a bad grade secret. Although secrecy and

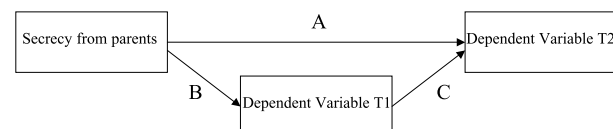
disclosure are obviously related, they should be considered distinct constructs (cf. Larson and Chastain, 1990; Finkenauer *et al.*, 2002). To investigate the consequences of secrecy above and beyond disclosure, it is necessary to take into account the extent to which adolescents communicate with their parents.

In some cases, adolescents may perceive their parents as unsupportive or unavailable, or may not trust their parents to respect their feelings. In these cases, observed disadvantages of secrecy from parents may actually be more reflective of a bad relationship with parents than of the influence of keeping secrets from them. Therefore, to identify the effects of secrecy, it is necessary to take into account the extent to which adolescents trust their parents and perceive them as supportive.

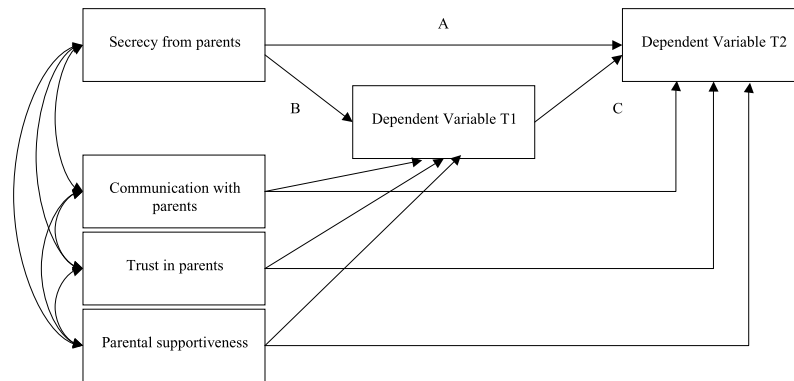
## OVERVIEW

This study is the first to investigate the disadvantages and advantages of secrecy from parents in adolescence longitudinally. It contributes to the existing literature by extending the scope of research on secrecy's disadvantages, which has hitherto been limited to physical and psychological detriments, to include behavioral problems. Furthermore, it investigates secrecy's possible contribution to adolescent development by examining its relation to self-control in adolescence.

To investigate the disadvantages and advantages of secrecy from parents for adolescent well-being and self-control, we conducted a longitudinal study among 1173 young adolescents. Figure 1 depicts the hypothesized influence of secrecy from parents on adolescent problems and adjustment. We predicted that the psychological disadvantages of secrecy found among adults and adolescents (i.e., low self-esteem, depressive mood, and stress) would hold longitudinally in adolescence, even when controlling for existing psychological problems. We extended the investigation of secrecy's disadvantages by examining secrecy's relation to problem behaviors (i.e., aggressive behavior and delinquency). Finally, we predicted that secrecy from parents should be related to increased feelings of self-control in adolescence. To disentangle the influence of secrecy from that of possible confounding variables, we included a number of parent-related vari-



**Fig. 1.** Path diagram: Influence of secrecy from parents on changes in dependent variables.



**Fig. 2.** Path diagram: Influence of secrecy from parents, communication with parents, trust in parents, and perceived parental supportiveness on changes in dependent variables.

ables (i.e., communication with parents, trust in parents, and perceived parental supportiveness) in our model of secrecy's influence on adolescent problems and adjustment (see Fig. 2).

## METHOD

### Procedure and Sample Characteristics

Data for analyses were derived from a large-scale longitudinal survey among 10–14-year-old adolescents in the Netherlands. A total of 6 schools in the regions of Utrecht and Apeldoorn participated in the study. All students of the first grade of secondary education of these schools were included with a total of 45 classes. Before the questionnaires were administered, parents were informed about the aims of the study and could return a form stating that they did not want their child to participate (although some parents called the institute for additional information, none of the parents returned this form). In addition, parents could request to receive a summary of the outcomes of the study.

The 1st wave of data collection (T1) was conducted in the winter of 2000. The questionnaires were filled out in the classrooms in the presence of a teacher, who had received instructions on how to administer the questionnaire. Also, teachers ensured that confidentiality and anonymity were rigorously respected. No explicit refusals were recorded; nonresponse was exclusively due to the adolescent's absence at the day of assessment. A total of 1357 adolescents participated at T1.

The 2nd wave of data collection (T2) was conducted 6 months after T1 in the summer of 2001. Questionnaires were administered among adolescents following procedures similar to those used in the first wave. A total of 1215 (89%) adolescents participated at T2. Again, no explicit

refusals were recorded; nonresponse was exclusively due to the adolescent's absence at the day of assessment.

Attention was drawn to the confidentiality of responses (see Botvin and Botvin, 1992). The letters of introduction and the questionnaires emphasized privacy aspects, and clearly stated that no information about the specific responses of participants would be passed on to teachers or parents. No anonymous questionnaires could be used because of the fact that we matched numbers and participants' names for the follow-up surveys. Even so, matching of numbers and names was only done by the principal researcher. In order to motivate respondents to participate, adolescents were included in a lottery in which CD certificates could be won.

Because our analyses require reports from adolescents at both waves of data collection, we only used data of adolescents who were enrolled in both waves of the study, and whose questionnaires at T1 and T2 could be matched. Overall, 1173 adolescents (86% of the initial sample) provided complete data.

In total, 602 (51%) boys and 571 girls participated in this study. The mean age of the adolescents was 12.3 years ( $SD = 0.52$ ). The majority of adolescents (96%) were born in the Netherlands. The majority of adolescents (88.6%) lived with 2 parents, 8.6% lived with their mother, 1% lived with their father, and 1.8% lived with other family members or in institutions.

### Questionnaires

Adolescents received a large battery of questionnaires. Only those questionnaires relevant to the questions addressed in this paper will be presented here. Results pertaining to the remaining parts of the questionnaire are reported elsewhere (Engels *et al.*, 2003; Harakeh *et al.*, 2003).

### Secrecy From Parents

To assess secrecy from parents, we used an adapted version of Larson and Chastain's Self-Concealment Scale (SCS; Larson and Chastain, 1990; adapted and translated into Dutch by Finkenauer *et al.*, 2002). The original SCS consists of 10 items assessing (a) the tendency to keep things to oneself, (b) the possession of a secret or negative thoughts not shared with others, and (c) the apprehension of the revelation of concealed personal information (for information on the psychometric properties of the SCS, see Cramer and Barry, 1999; Larson and Chastain, 1990). In the adapted version, parents were added as the target of adolescents' secrecy to each of the original items. The items "My secrets are too embarrassing to share with others" and "I have negative thoughts about myself that I never share with anyone," for example, became "My secrets are too embarrassing to share with my parents" and "I have negative thoughts about myself that I never share with my parents," respectively. Confirming the construct validity of the used secrecy from parents scale, Frijns and Finkenauer (2002) showed that the scale predicted whether adolescents were actually keeping a specific secret from their parents at the time of their study. Adolescents rated all items on a scale ranging from 1 (*not at all*) to 5 (*extremely*). In our study, the scale had high internal consistency (Cronbach's  $\alpha = 0.87$ ). Adolescents' ratings were averaged to establish a secrecy from parents score; higher values indicated greater secrecy. This scale was administered at T1 only.

### Self-Esteem

Rosenberg's (1965) self-esteem scale assessed adolescents' perceived self-value or sense of worth (e.g., "Sometimes I feel that I am completely useless," "In general I am happy with myself"). This scale is often taken as an indicator of psychosocial adjustment among adolescents (Kahle *et al.*, 1980). The scale consists of 10 items and responses were given on a scale ranging from 1 (*very descriptive of me*) to 4 (*not at all descriptive of me*). The Rosenberg scale was administered at both waves and, like in previous studies, it had high internal consistency (Cronbach's  $\alpha = 0.79$  and  $0.83$  at T1 and T2, respectively).

### Depressive Mood

Kandel and Davies' (1982) 6-item Kandel Depression Scale was used to assess depressive mood. Adolescents rated the frequency (0 = *never*; 4 = *always*) with

which they experienced symptoms of depressive mood such as feeling nervous and tensed (Cronbach's  $\alpha = 0.78$  and  $0.80$  at T1 and T2, respectively). Their responses were averaged to yield a depressive mood score; higher values indicated more frequent feelings of depression.

### Stress

A short form of the Perceived Stress Scale (Cohen *et al.*, 1983) was employed to measure the degree to which adolescents perceived their lives to be unpredictable, uncontrollable, or overloaded in the past month (e.g., "Have you been upset because something unexpected happened," "Have you had the feeling that important matters in your life were beyond your control"). The 11 items were rated on a scale ranging from 1 (*never*) to 5 (*very often*). Responses were averaged to yield a stress score; higher scores were associated with increased levels of stress. The scale had high internal consistency (Cronbach's  $\alpha = 0.80$  and  $0.82$  at T1 and T2, respectively).

### Aggressive Behavior

We assessed aggressive behavior by means of a subscale from the Dutch version of the Youth Self-Report (Achenbach, 1991; Verhulst *et al.*, 1996). The subscale consists of 8 items tapping explicit aggressive behavior over the last 6 months. Item examples are "I fight a lot" or "I destroy other people's things." Adolescents rated the items on a 3-point scale (0 = *does not apply to me at all*, 1 = *sometimes applies to me*, 2 = *often applies to me*). The internal consistency of the scale in our study was Cronbach's  $\alpha = 0.69$  and  $0.76$  at T1 and T2, respectively.

### Delinquency

We assessed self-reported delinquency using 14 items derived from a widely employed Dutch instrument measuring the frequency with which adolescents engage in petty crime (e.g., Baerveldt and Snijders, 1994; Houtzager and Baerveldt, 1999). These items assess how many times in the past 12 months adolescents had committed minor offences, such as shoplifting and petty theft, commonly measured in the literature (see also, Kerr and Stattin, 2000). Response categories ranged from 1 (*never*) to 4 (*4 times or more*). The total number of offenses was used as a scale with high internal consistency (Cronbach's  $\alpha = 0.82$  and  $0.93$  at T1 and T2, respectively).

### *Self-Control*

To assess self-control, a shortened version of the self-control scale developed by Tangney *et al.* (2004) was employed. The self-control scale aims to assess people's ability to control their impulses, alter their emotions and thoughts, and to interrupt undesired behavioral tendencies and refrain from acting on them (for a review on the conceptualization see Muraven and Baumeister, 2000; for information on the reliability of the Dutch translation see Van Duijn, 2000; Van Kooten, 2000). The shortened version consists of 8 items rated on a scale ranging from 1 (*not at all*) to 5 (*very much*). Item examples are "I have trouble concentrating" (reverse scored) or "I am lazy" (reverse scored). Responses were averaged to yield a self-control scale with higher values indicating greater feelings of self-control. In our study, the internal consistency of the shortened scale was Cronbach's  $\alpha = 0.67$  and  $0.70$  at T1 and T2, respectively.

### *Communication with Parents*

To assess the extent to which adolescents communicate with their parents, we used the Communication subscale of the Inventory of Parent and Peer Attachment (IPPA; Armsden and Greenberg, 1987). This scale consists of 8 items, 4 items for each parent (e.g., "I tell my mother/father about my problems and worries"). Response categories ranged from 1 (*never*) to 5 (*always*). The scale was administered at T1 only and had high internal consistency (Cronbach's  $\alpha = 0.82$ ).

### *Trust*

The Trust subscale of the IPPA was used to measure the degree to which adolescents trust their parents. This subscale of the IPPA is indicative of the relative degree of perceived parental security by adolescents. This scale consists of 8 items, 4 items for each parent (e.g., "My mother/father accepts me the way I am"). Response categories ranged from 1 (*never*) to 5 (*always*). The scale was administered at T1 only and had high internal consistency (Cronbach's  $\alpha = 0.80$ ).

### *Parental Supportiveness*

To assess adolescents' perceptions of parental supportiveness, we used the support scale of a Dutch translation of the parenting style index (Lamborn *et al.*, 1991; Steinberg *et al.*, 1994; translated into Dutch by Beyers and Goossens, 1999). The support scale consists of 11 items

assessing the extent to which adolescents perceive their parents as supportive, stimulating, and encouraging (e.g., "When I receive a bad grade at school, my parents encourage me to do better"). Response categories ranged from 1 (*not true at all*) to 5 (*completely true*). The scale was administered at T1 only and showed good internal consistency (Cronbach's  $\alpha = 0.79$ ).

## RESULTS

### Descriptive Analyses: Gender Differences

Table I provides data on the means and standard deviations of the variables assessed in this study. To examine gender differences that are commonly found in research on adolescent-parent communication (e.g., Youniss and Smollar, 1985; for a review see Buhrmester and Prager, 1995), we performed *t*-tests on the variables that were assessed at T1 only, comparing female and male adolescents. Data for the variables assessed at both waves were analyzed using 2 (gender)  $\times$  2 (wave) mixed design ANOVAs. Main effects for gender will be reported.

Adolescents reported keeping some secrets from their parents. The degree to which they reported keeping secrets from their parents did not vary across gender. Adolescents' reported communication with parents, trust in parents, and parental supportiveness also did not vary across gender. Overall, female adolescents reported lower levels of self-esteem,  $F(1, 1165) = 45.90$ ,  $p = 0.000$ , than did their male counterparts (see Table I). Female adolescents also reported more frequent depressive mood,  $F(1, 1118) = 16.58$ ,  $p = 0.000$ , and higher levels of stress,  $F(1, 1148) = 9.89$ ,  $p = 0.002$ , than did male adolescents. Female adolescents reported lower levels of aggression,  $F(1, 991) = 57.40$ ,  $p = 0.000$ , and delinquency,  $F(1, 941) = 112.01$ ,  $p = 0.000$ , than did male adolescents. No gender differences emerged for self-control.

### Descriptive Analyses: Correlations

Table II presents the correlation matrices for the variables assessed in this study. As expected, secrecy from parents was associated with all the dependent variables at T1 and at T2. Consistent with the suggestion that secrecy from parents may be confounded with other characteristics of the adolescent-parent relationship, secrecy from parents was negatively associated with communication with parents, trust in parents, and perceived parental supportiveness. These parental variables were also associated with all dependent variables at T1 and

**Table I.** Means and Standard Deviations for Secrecy, Its Consequences, and Potential Confounds

Variable	Female adolescents		Male adolescents		Total sample	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secrecy from parents	2.09	0.73	2.08	0.74	2.08	0.74
Self-esteem						
At T1	3.08	0.52	3.23***	0.45	3.16	0.49
At T2	3.08	0.58	3.28***	0.47	3.18	0.54
Depressive mood						
At T1	2.36	0.68	2.24***	0.65	2.30	0.67
At T2	2.42	0.69	2.24***	0.69	2.32	0.69
Stress						
At T1	2.25	0.56	2.19**	0.53	2.22	0.55
At T2	2.33	0.58	2.21**	0.59	2.27	0.59
Aggressive behavior						
At T1	1.20	0.22	1.31***	0.29	1.26	0.26
At T2	1.23	0.26	1.33***	0.33	1.28	0.30
Delinquency						
At T1	1.07	0.19	1.27***	0.36	1.17	0.31
At T2	1.10	0.26	1.34***	0.56	1.22	0.46
Self-control						
At T1	3.54	0.63	3.54	0.65	3.54	0.64
At T2	3.48	0.67	3.53	0.65	3.51	0.66
Communication parents	4.34	0.90	4.36	0.87	4.35	0.88
Trust in parents	4.95	0.74	4.93	0.77	4.94	0.76
Parental supportiveness	4.05	0.55	4.03	0.55	4.04	0.55

Note. Asterisk indicates significant difference.

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

at T2. Finally, all dependent variables at T1 were strongly associated with their corresponding T2 variables.

### Testing for Main Effects of Secrecy from Parents

Using the LISREL 8.52 statistical program (Jöreskog and Sörbom, 1996), we analyzed the model presented in Fig. 1 for each of the dependent variables. We found sig-

nificant cross-sectional associations between secrecy from parents and all dependent variables (see Table III, path B). In line with our predictions, secrecy from parents was associated with less self-esteem, more depressive mood, and more stress. As predicted, it was also associated with increased aggressive behavior and delinquency. Opposite to expectations, secrecy from parents was associated with less self-control. In each of the analyses, the dependent variable at T1 was strongly related to the corresponding T2

**Table II.** Correlation Matrices of the Variables Assessed in This Study

Variable	1	2	3	4	5	6	7	8	9	10
1. Secrecy from parents	—				−0.33***	0.31***	0.33***	0.30***	0.24***	−0.40***
2. Communication parents	−0.42***	—			0.25***	−0.15***	−0.26***	−0.20***	−0.14***	0.16***
3. Trust in parents	−0.44***	0.72***	—		0.25***	−0.17***	−0.26***	−0.19***	−0.16***	0.16***
4. Parental supportiveness	−0.37***	0.67***	0.63***	—	0.23***	−0.16***	−0.23***	−0.14***	−0.10**	0.15***
5. Self-esteem	−0.37***	0.28***	0.29***	0.27***	—	0.61***				
6. Depressive mood	0.43***	−0.23***	−0.24***	−0.21***	−0.49***	—	0.56***			
7. Stress	0.43***	−0.34***	−0.35***	−0.30***	−0.59***	0.65***	—	0.53***		
8. Aggressive behavior	0.39***	−0.21***	−0.26***	−0.19***	−0.16***	0.24***	0.23***	—	0.41***	
9. Delinquency	0.31***	−0.16***	−0.19***	−0.16***	−0.08*	0.13***	0.20***	0.42***	—	0.53***
10. Self-control	−0.44***	0.25***	0.23***	0.20***	0.38***	−0.47***	−0.44***	−0.36***	−0.20***	—

Note. Values below the diagonal represent correlations at T1, those above the diagonal represent correlations between row-variable at T1 and column-variable at T2, and values on the diagonal represent correlations between the dependent variables at T1 and at T2.

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .



**Table III.** Path Coefficients for Model Without and With Confounding Variables

Variable	N	Model without confounds (path coefficient)			Model with confounds (path coefficient)		
		A	B	C	A	B	C
Self-esteem	877	−0.12***	−0.37***	0.58***	−0.10**	−0.27***	0.56***
Depressive mood	943	0.09**	0.42***	0.53***	0.08*	0.38***	0.53***
Stress	964	0.13***	0.43***	0.47***	0.10**	0.33***	0.46***
Aggressive behavior	905	0.16***	0.38***	0.36***	0.14***	0.34***	0.36***
Delinquency	893	0.07*	0.32***	0.52***	0.05	0.28***	0.52***
Self-control	897	−0.25***	−0.44***	0.34***	−0.27***	−0.40***	0.35***

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

variable (see Table III, path C), indicating that adolescent problems and self-control were rather stable over time. Above and beyond this stability, secrecy from parents had a direct longitudinal influence on all dependent variables (see Table III, path A). Its longitudinal associations with psychological and behavioral problems were all in the predicted direction, although the coefficients were modest ( $\beta = 0.07$  to  $0.16$ ). Secrecy from parents showed a strong longitudinal association with self-control ( $\beta = -0.25$ ), although, contrary to our prediction, it was associated with lower levels of self-control. This finding suggests that the more adolescents conceal information from their parents, the less developed are their feelings of self-control. In addition, the analyses suggest that secrecy from parents may have an indirect longitudinal influence on all the dependent variables through its cross-sectional associations with the dependent variables.

Figure 2 presents the model that includes the confounding variables. Analysis of this model for each of the dependent variables yielded negative cross-sectional associations of trust in parents with stress ( $\beta = -0.14$ ,  $p < 0.01$ ) and aggressive behavior ( $\beta = -0.10$ ,  $p < 0.05$ ). However, trust in parents showed no longitudinal association with either stress or aggressive behavior. Communication with parents and perceived parental support were neither cross-sectionally nor longitudinally associated with any of the dependent variables. As can be seen in Table III, inclusion of the parental variables in the model did not alter the pattern of results concerning the associations of secrecy from parents. Secrecy showed cross-sectional associations with all the dependent variables. Though secrecy was no longer associated longitudinally with delinquency, its longitudinal associations with all other dependent variables remained.

### Testing for Moderator Effects

To examine the possible role of adolescent gender as a moderator of the associations between secrecy from par-

ents and the dependent variables, we estimated the model separately for female and male adolescents with all of the parameters constrained to be equal. For the psychological problems, aggression, and self-control, the constrained model fitted the data reasonably well (all  $\chi^2(5) < 9$ ). For delinquency, these constraints resulted in a chi square of 19.57 ( $p = 0.0015$ ), indicating that equal solutions for female and male adolescents did not fit the data well. Investigation of the model for delinquency without constraints showed that secrecy has a stronger cross-sectional association with delinquency among male adolescents (0.18) than among female adolescents (0.07). Parameter estimates for the associations of secrecy from parents and delinquency at T1 with delinquency at T2 were equal for male and female adolescents (0.05 and 0.70, respectively). Thus, gender moderates the cross-sectional association between secrecy from parents and delinquency, with secrecy influencing delinquency more strongly among boys than among girls.

### DISCUSSION

The present results can be summarized as follows. Keeping secrets from parents was associated with psychological disadvantages in adolescence, contributing to low self-esteem, depressive mood, and stress both cross-sectionally and longitudinally. Further, secrecy from parents was associated with behavioral problems, as it contributed to aggression and delinquency both cross-sectionally and longitudinally. Also, secrecy from parents showed strong cross-sectional and longitudinal associations with self-control. Contrary to our prediction, however, it was associated with lower levels of self-control. Thus, adolescents who reported keeping many secrets from their parents also reported more psychosocial problems, more behavioral problems, and less self-control. These results held even when controlling for the influence of possible confounds, including communication with parents, trust in parents, and parental supportiveness (though

secrecy no longer contributed to delinquency longitudinally). Moreover, though trust in parents showed cross-sectional associations with stress and aggressive behavior, only secrecy contributed to stress and aggressive behavior longitudinally. Taken together, these results suggest that secrecy is at least as dangerous an undertaking in adolescence as it is in adulthood (e.g., Larson and Chastain, 1990).

Although we found differences between boys and girls in psychosocial well-being and problem behavior, there was little evidence of gender differences in the associations of secrecy from parents with well-being and problem behavior. Though gender moderated the cross-sectional association between secrecy and delinquency, no such moderation was found longitudinally. Gender did not moderate the associations between secrecy from parents and any of the other dependent variables. Thus, secrecy from parents does not seem to play a role in bringing about the differences between boys and girls in the types of problems they experience upon entering adolescence.

### The Dark Side of Secrecy

Consistent with existing findings (Finkenauer *et al.*, 2002), secrecy from parents was associated with substantial psychological disadvantages for adolescents. Besides psychological disadvantages, we found behavioral disadvantages of secrecy from parents. How can these disadvantages of secrecy be explained? We want to propose 3 theoretical alternative answers to this question. One possible answer is that keeping secrets is hard work. It requires constant active monitoring and inhibition or suppression of one's thoughts, feelings, and behavior to avoid revelation of secret information. All this hard work may wear and tear body and mind, causing physiological arousal and psychological stress. This may ultimately lead to the physical and psychological disadvantages of secrecy (e.g., Pennebaker, 1989; Lane and Wegner, 1995).

Another explanation may be that by keeping secrets from their parents, adolescents may deprive their parents of the knowledge they need to respond adequately to their offspring's needs. For example, self-presentational concerns may motivate adolescents to keep their shortcomings and insecurities secret from their parents. Parents' attempts to support their offspring may then become less effective. Thus, by keeping secrets from their parents, adolescents essentially deprive themselves of an important source of social support and affirmation, which may decrease their psychosocial well-being and may contribute to behavioral problems. This explanation holds

even though we controlled for perceived parental supportiveness in the analyses of our data. Parental supportiveness reflects the extent to which parents are willing, but not necessarily always able, to provide support for their children. If children conceal important information from their parents, parental support will be less effective, no matter how willing parents are to provide support.

A third explanation may be that keeping secrets from parents undermines feelings of belongingness. This explanation is based on 2 assumptions. First, we assume that the need to belong constitutes a fundamental human motivation (Baumeister and Leary, 1995). Second, by nature, secrets separate the secret-keeper from those who do not know about the secret. Thus, at least on a psychological level, the secret-keeper should experience some degree of separation from secret-targets. Because the relationship with one's parents is an important and lasting interpersonal relationship involving frequent interaction, we propose that the experience of separation from parents that may accompany secrecy from them is a potentially powerful threat to belongingness. According to Baumeister and Leary (1995), deprivation of belongingness should cause a variety of ill effects, including physical, emotional, psychological, and even behavioral ramifications. For example, Twenge *et al.* (2002) provided experimental evidence that a threat to belongingness causes a variety of self-defeating behaviors. Future studies should examine whether secrecy from parents constitutes a severe enough threat to belongingness to account for its observed disadvantages.

### A Brighter Side of Secrecy?

We found no evidence that secrecy from parents contributes to adolescent development by enhancing feelings of self-control. On the contrary, secrecy from parents was a strong predictor of lower levels of self-control. This finding suggests that secrecy from parents impedes self-regulation. How can this finding be explained? We will propose 2 alternative explanations. The first explanation derives from the strength model of self-control. This model proposes that self-control consumes a limited resource (Baumeister *et al.*, 2000; Muraven and Baumeister, 2000). In this view, exerting self-control in one domain consumes self-control strength, which reduces the amount of strength available for self-control efforts in other domains. Because the capacity to exert self-control encompasses the ability to keep secrets (Tangney *et al.*, 2004), it could be argued that high levels of secrecy from parents cause depletion of the limited resource available for self-control, thus impairing adolescents' capacity to

self-control in other domains. In this way, keeping secrets from parents impairs adolescents' development towards mastering self-regulation.

A 2nd explanation focuses on a distinction between functional and dysfunctional secrecy. In the introduction, we claimed that learning to keep secrets is part of normal development and suggested that secrecy may serve as a strategy to cope with our social environments. Thus, keeping secrets involves control over both the self and the social environment. In this regard, functional secrecy from parents involves the ability to regulate the self (i.e., to keep secrets) strategically in response to relational goals and demands within the family context. We propose that a high level of secrecy from parents constitutes dysfunctional secrecy because it lacks the flexibility to respond adequately to situational demands. Rather than selectively concealing information, some adolescents keep almost everything secret from their parents. Such high levels of secrecy from parents may indicate that adolescents habitually opt for secrecy, which may prevent them from developing the ability to alter and regulate their behavior in accordance with situational demands. In other words, keeping many secrets from parents may lead to poor self-control (i.e. poor self-regulation skills). Our measurement of secrecy in adolescent-parent relationships does not allow us to differentiate between functional and dysfunctional secrecy. Future studies should examine how and when adolescents use secrecy strategically, and should examine individual differences in the ability to employ secrecy strategically. Such studies could help us distinguish between functional and dysfunctional secrecy.

A final question that arises is how the negative association between secrecy from parents and self-control fits with the previous finding that secrecy from parents contributes to emotional autonomy in adolescence (Finkenauer *et al.*, 2002). At first sight, these findings seem incompatible. However, in the study by Finkenauer *et al.* (2002), emotional autonomy was associated with psychosocial disadvantages. This finding supports the suggestion that the concept of emotional autonomy has a negative connotation and reflects detachment from parents, rather than independence from parents (Ryan and Lynch, 1989; Frank *et al.*, 1990; Fuhrman and Holmbeck, 1995; for a review on the "detachment debate," see Silverberg and Gondoli, 1996). This interpretation is consistent with our suggestion that secrecy from parents should be accompanied by the experience of separation from parents. The experience of separation from parents would thus be reflected in the increased detachment from parents that is associated with keeping secrets from them. Although we did not measure detachment from parents in the present study, the univariate correlations from T1

between secrecy and all parental measures provide some preliminary support for this suggestion.

In sum, our findings suggest that secrecy is quite deserving of its unsavory reputation, perhaps even more so in adolescence than in adulthood. They suggest that secrecy is a unique and powerful social phenomenon that affects the lives of adolescents in many ways. The secrets that adolescents keep from their parents may have ramifications for their sense of worth, their emotions, their actions, and their sense of control over themselves and their lives. Therefore, the concept of secrecy is an important addition to research on adolescence that demands closer investigation.

### Limitations of the Study

Our investigation of the associations of secrecy in adolescence focused specifically on secrecy from parents. Of course, parents are not the only candidates for secrecy, nor are they the only candidates for sharing secrets with. Friends, siblings, teachers, and other significant others provide opportunity for concealing or confiding secrets. It is conceivable that the impact of keeping secrets depends on from whom they are kept and with whom they are shared (cf. Kelly and McKillop, 1996). For example, keeping secrets all to oneself may be more harmful to adolescents than keeping secrets from their parents but sharing them with their best friend(s). Furthermore, our measure of secrecy from parents does not allow for distinction between secrets kept from mothers versus fathers. It is possible that it matters whether secrets are kept from both parents or specifically from one parent, especially when they are shared with the other parent. Finally, our investigation focused on the amount of secrecy from parents, regardless of secret-content. Although the available evidence suggests that secrecy has a negative impact on the secret-keeper that is independent of the content of the secret (e.g., Larson and Chastain, 1990; Lane and Wegner, 1995), the specific content of a secret should also play a role in determining the consequences of secrecy. Future research needs to examine different (types of) targets, confidants, and contents of secrets to investigate their roles and possible interplay in bringing about the disadvantages and possible advantages of secrecy in adolescence.

Although our study examined the longitudinal associations of secrecy in adolescence, a number of shortcomings call for caution when drawing conclusions on the causal direction of the observed associations. First, secrecy from parents was assessed at the 1st wave only. Second, our longitudinal study consisted of only 2 waves of data collection. Thus, even though our study examined

the plausibility of the proposed causal relationships between secrecy and adolescent well-being and development, it cannot effectively rule out the alternative account that low self-control or psychosocial and behavioral problems lead to increased secrecy from parents.

Despite its shortcomings, this study provides potent evidence that secrecy from parents is an important risk factor in adolescent well-being, problem behavior, and self-control. Given this evidence, further investigation of the extent of secrecy's disadvantages in adolescence and the underlying mechanisms is called for.

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